

CLAIMS

1. An apparatus, comprising:

at least one light source adapted to be supported by one of a pool and a spa to

5 illuminate a liquid contained in the one of the pool and the spa, the at least one light source being further adapted to generate a remotely controllable variable color radiation output to illuminate the liquid without requiring the use of a color filter.

10 2. The apparatus of claim 1, in combination with the one of the pool and the spa.

15 3. The apparatus of claim 1, wherein the at least one light source is adapted to generate a remotely controllable variable color radiation output having at least one of a remotely controllable variable hue, a remotely controllable variable saturation, and a remotely controllable variable intensity.

20 4. The apparatus of claim 1, wherein the at least one light source includes means for engaging the at least one light source mechanically and electrically with a conventional light socket supported by the one of the pool and the spa.

25 5. The apparatus of claim 1, wherein the at least one light source includes at least one LED.

6. The apparatus of claim 5, wherein the at least one LED includes at least two differently colored LEDs.

25 7. The apparatus of claim 5, wherein the at least one LED includes at least one red LED, at least one green LED, and at least one blue LED.

30 8. The apparatus of claim 1, wherein the at least one light source includes at least one input to receive at least one external signal, and wherein the at least one light source is adapted such that at least one color of the variable color radiation output is controlled based on the at least one external signal.

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9. The apparatus of claim 8, wherein the at least one external signal is derived from a power source that supplies power to the apparatus, and wherein the at least one light source is adapted such that the variable color radiation output is controlled based on at least one interruption in the power supplied to the apparatus.

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10. The apparatus of claim 8, wherein the at least one external signal is derived from at least one sensor adapted to output at least one detection signal in response to at least one detectable condition, and wherein the at least one light source is adapted such that the variable color radiation output is controlled based on at least one detectable condition.

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11. The apparatus of claim 8, wherein the at least one external signal is derived from at least one other device associated with the one of the pool and the spa, and wherein the at least one light source is adapted such that the variable color radiation output is controlled based on the at least one device.

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12. The apparatus of claim 8, wherein the at least one external signal is derived from at least one audio signal, and wherein the at least one light source is adapted such that the variable color radiation output is controlled based on the at least one audio signal.

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13. The apparatus of claim 8, wherein the at least one external signal is derived from a data network that provides at least one information signal intended for the at least one light source, and wherein the at least one light source is adapted such that the variable color radiation output is controlled based on the at least one information signal.

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14. The apparatus of claim 13, further including the data network, wherein:
the data network is associated with a networked lighting system including a plurality of remotely controllable light sources; and
30 the at least one light source forms part of the networked lighting system.

15. The apparatus of claim 13, wherein:

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the data network is coupled to at least one other device associated with the one of the pool and the spa; and

the at least one information signal is received from the at least one other device, such that the variable color radiation output is controlled by the at least one other device.

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16. The apparatus of claim 13, wherein the data network includes the Internet, wherein the at least one information signal includes at least one Internet signal, and wherein the at least one light source is adapted such that the variable color radiation output is controlled based on the at least one Internet signal.

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17. The apparatus of claim 16, wherein the at least one Internet signal relates to at least one weather condition, and wherein the at least one light source is adapted such that the variable color radiation output is controlled based on the at least one weather condition.

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18. The apparatus of claim 8, further comprising at least one storage device, coupled to the at least one light source, to store at least one illumination program, wherein the apparatus is adapted to execute the at least one illumination program so as to control the remotely controllable variable color radiation output by the at least one light source based on the at least one external signal.

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19. The apparatus of claim 1, further comprising at least one remote user interface, coupled to the at least one light source, to allow a user to remotely control at least a color of the variable color radiation output of the at least one light source.

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20. The apparatus of claim 19, in combination with the one of the pool and the spa.

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21. The apparatus of claim 19, wherein at least one of the at least one light source and the at least one remote user interface comprises at least one storage device to store at least one illumination program, wherein the at least one remote user interface is adapted to allow the user to cause the execution of the at least one illumination

program so as to control the remotely controllable variable color radiation output by the at least one light source.

22. The apparatus of claim 21, wherein the at least one illumination program includes

5 a plurality of illumination programs, wherein the at least one storage device stores the plurality of illumination programs, and wherein:

the at least one remote user interface is adapted to allow a user to select a particular illumination program of the plurality of illumination programs; and

10 the at least one remote user interface is adapted to cause the execution of the selected particular illumination program.

23. The apparatus of claim 21, wherein the at least one remote user interface includes

15 the at least one storage device and further comprises at least one processor, coupled to the at least one storage device, to execute the at least one illumination program.

24. The apparatus of claim 19, wherein the at least one remote user interface further

comprises at least one processor and at least one selector, coupled to the at least one processor, to allow the user to remotely control at least one parameter associated with the variable color radiation output of the at least one light source, wherein the at least one processor is responsive to operation of the at least one selector.

25. The apparatus of claim 24, wherein the at least one selector includes at least one button.

26. The apparatus of claim 24, wherein the at least one selector includes at least one of an adjustable dial, an adjustable slider, an adjustable thumb wheel and a joystick.

27. The apparatus of claim 24, wherein the at least one selector includes at least one of a keypad and a touch-sensitive pad.

30 28. The apparatus of claim 24, wherein the at least one selector includes at least one switch.

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29. The apparatus of claim 24, wherein at least one of the at least one light source and the at least one remote user interface comprises at least one storage device to store at least one illumination program.

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30. The apparatus of claim 29, wherein the at least one parameter includes at least one of an intensity of the variable color radiation, a color of the variable color radiation, and at least one property of the at least one illumination program, and wherein:

10 the at least one remote user interface is adapted such that the at least one selector allows the user to remotely control at least one of the intensity of the variable color radiation, the color of the variable color radiation, and the at least one property of the illumination program.

15 31. The apparatus of claim 30, wherein the at least one property of the illumination program includes an execution speed of the illumination program, and wherein:

the at least one remote user interface is adapted such that the at least one selector allows the user to remotely control the execution speed of the illumination program.

20 32. The apparatus of claim 29, wherein the at least one illumination program includes a plurality of illumination programs, wherein the at least one storage device stores the plurality of illumination programs, and wherein:

25 the at least one remote user interface is adapted such that the at least one selector allows the user to remotely select a particular illumination program of the plurality of illumination programs.

33. The apparatus of claim 24, wherein the at least one remote user interface includes at least one display screen, coupled to the processor, to indicate to the user a status of at least one parameter associated with the variable color radiation output of the at least one light source.

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34. The apparatus of claim 19, wherein the at least one remote user interface further includes at least one communication port to output at least one control signal, and wherein the apparatus further comprises:

at least one controller, coupled to the at least one light source and to the at least one communication port, to receive the at least one control signal from the at least one remote user interface and to control the variable color radiation output based on the at least one control signal.

35. The apparatus of claim 34, wherein the at least one communication port is adapted to support transport of the at least one control signal to the at least one controller via at least one of a wire link and a fiber optic.

36. The apparatus of claim 34, wherein the at least one communication port is adapted to support transport of the at least one control signal to the at least one controller via a wireless link.

37. The apparatus of claim 34, further comprising:
at least one storage device, coupled to at least one of the at least one remote user interface and the at least one controller, to store at least one illumination program,
wherein the at least one controller is adapted to execute the at least one illumination program, based on the at least one control signal output by the at least one remote user interface, so as to control the radiation output by the at least one light source.

38. The apparatus of claim 37, wherein the at least one illumination program includes a plurality of illumination programs, wherein the at least one storage device stores the plurality of illumination programs, and wherein:

the at least one remote user interface is adapted to allow a user to remotely select a particular illumination program of the plurality of illumination programs and to output the at least one control signal so as to indicate the selected particular illumination program; and

the at least one controller is adapted to execute the selected particular illumination program based on the at least one control signal.

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39. A method of illuminating a liquid, comprising acts of:
a) illuminating the liquid with variable color radiation that is generated without
requiring the use of a color filter; and

5 b) remotely controlling at least a color of the variable color radiation.

40. The method of claim 39, wherein the liquid is contained in one of a pool and a
spa, and wherein the act a) comprises an act of:

10 illuminating the liquid in the one of the pool and the spa with the variable color
radiation.

41. The method of claim 39, wherein the act b) comprises an act of:
remotely varying at least one of an intensity and a color of the variable color
radiation.

15 42. The method of claim 39, wherein the act b) comprises an act of:
remotely controlling the variable color radiation based on at least one interruption
in power supplied to at least one light source that generates the variable color radiation.

20 43. The method of claim 39, wherein the act b) comprises an act of:
remotely controlling the variable color radiation based on at least one detectable
condition.

44. The method of claim 39, wherein the act b) comprises an act of:
25 remotely controlling the variable color radiation based on at least one audio
signal.

45. The method of claim 39, wherein the act b) comprises an act of:
30 b1) remotely controlling the variable color radiation based on information
obtained from a data network.

46. The method of claim 45, wherein the act b1) comprises an act of:

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remotely controlling the variable color radiation based on information obtained from at least one other device coupled to the data network.

47. The method of claim 45, wherein the act b1) comprises an act of:

5 b2) remotely controlling the variable color radiation based on information obtained from the Internet.

48. The method of claim 47, wherein the information received from the Internet relates to at least one weather condition, and wherein the act b2) includes an act of:

10 remotely controlling the variable color radiation based on the at least one weather condition.

49. The method of claim 39, wherein the act b) comprises an act of:

15 b3) remotely initiating execution of at least one illumination program so as to control the variable color radiation.

50. The method of claim 49, wherein the at least one illumination program includes a plurality of illumination programs, and wherein the act b3) comprises acts of:

20 remotely selecting a particular illumination program of the plurality of illumination programs; and
executing the selected particular illumination program so as to control the variable color radiation.

51. The method of claim 49, wherein at least one parameter is associated with the at least one illumination program, and wherein the act b) further comprises an act of:

25 b4) remotely adjusting the at least one parameter associated with the at least one illumination program.

52. The method of claim 39, further comprising an act of:

30 c) indicating to a user a status of at least one parameter associated with the remotely controllable variable color radiation.

53. An apparatus, comprising:

at least one remote user interface to remotely control at least one light source adapted to be supported by one of a pool and a spa, the lights source further adapted to generate variable color radiation to illuminate a liquid contained in the one of the pool and the spa, the at least one remote user interface comprising:

at least two selectors to allow a user to remotely control at least one parameter associated with the variable color radiation generated by the at least one light source.

54. The apparatus of claim 53, in combination with the at least one light source.

10 55. The combination of claim 54, in combination with the one of the pool and the spa.

15 56. The apparatus of claim 53, wherein at least one selector of the at least two selectors includes at least one button.

20 57. The apparatus of claim 53, wherein at least one selector of the at least two selectors includes at least one of an adjustable dial, an adjustable slider, an adjustable thumb wheel and a joystick.

25 58. The apparatus of claim 53, wherein at least one selector of the at least two selectors includes at least one of a keypad and a touch-sensitive pad.

59. The apparatus of claim 53, wherein at least one selector of the at least two selectors includes at least one switch.

25 60. The apparatus of claim 53, wherein the at least one parameter includes at least one of an intensity of the variable radiation output of the at least one light source and a color of the variable radiation output of the at least one light source, and wherein the at least one remote user interface is adapted such that at least one selector of the at least two selectors allows a user to remotely control at least one of the intensity and the color of the variable radiation output of the at least one light source.

61. The apparatus of claim 53, wherein the at least one remote user interface includes at least one processor, responsive to the at least two selectors, to control the variable radiation output of the at least one light source.

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62. The apparatus of claim 61, wherein at least one of the at least one light source and the at least one remote user interface includes at least one storage device to store at least one illumination program, wherein the at least one remote user interface is adapted to cause the execution of the at least one illumination program, in response to at least one selector of the at least two selectors, so as to control the variable color radiation output by the at least one light source.

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63. The apparatus of claim 62, wherein the at least one remote user interface includes the at least one storage device, and wherein the at least one storage device is coupled to the at least one processor.

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64. The apparatus of claim 62, wherein the at least one parameter includes at least one of an intensity of the variable radiation output, a color of the variable radiation output, and at least one property of the illumination program, and wherein:

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the at least one remote user interface is adapted such that at least one selector of the at least two selectors allows the user to control at least one of the intensity of the variable radiation output, the color of the variable radiation output, and the at least one property of the illumination program.

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65. The apparatus of claim 64, wherein the at least one property of the illumination program includes an execution speed of the illumination program, and wherein:
the at least one remote user interface is adapted such that the at least one selector allows the user to control the execution speed of the illumination program.

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66. The apparatus of claim 62, wherein the at least one illumination program includes a plurality of illumination programs, wherein the at least one storage device stores the plurality of illumination programs, and wherein:

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the at least one remote user interface is adapted such that at least one selector of the at least two selectors allows the user to select a particular illumination program of the plurality of illumination programs.

5 67. The apparatus of claim 66, wherein:

a first selector of the at least two selectors allows the user to select the particular illumination program of the plurality of illumination programs; and

a second selector of the at least two selectors allows the user to control at least one property of the selected particular illumination program.

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68. The apparatus of claim 61, wherein the at least one remote user interface includes at least one display screen, coupled to the at least one processor, to indicate to the user a status of at least one parameter associated with the variable radiation output of the at least one light source.

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69. The apparatus of claim 61, wherein the at least one remote user interface further includes at least one communication port to output at least one control signal to the at least one light source, and wherein the at least one communication port is adapted to support transport of the at least one control signal to the at least one light source via at least one of a wire link and a fiber optic.

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70. The apparatus of claim 61, wherein the at least one remote user interface further includes at least one communication port to output at least one control signal to the at least one light source, and wherein the at least one communication port is adapted to support transport of the at least one control signal to the at least one light source via a wireless link.

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71. An apparatus, comprising:

at least one controller to control at least one light source, the at least one controller adapted to receive at least two input signals, the at least one controller further adapted to process only particular data received on at least one input signal of the at least

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two input signals based on a logic state of at least one input signal of the at least two input signals.